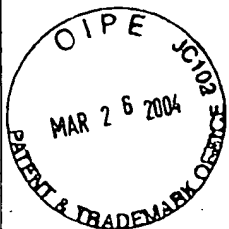


<b>FORM PTO-1449</b> (Rev. 2-32)	<b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>	<b>Atty. Docket No.</b> 00-838-Q (600.038)	<b>Serial No.</b> 10/656,270
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use several sheets if necessary)		<b>Applicant:</b> Eckstein et al.	
		<b>Filing Date:</b> September 5, 2003	<b>Group:</b> 1635



## U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
DS	*	5,149,796	09/22/95	Rossi et al.			
DS	*	5,298,612	03/29/94	Jennings et al.			
DS	*	5,334,711	08/02/94	Sproat et al.			

## FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
DS	*	EP 0321201	12/21/94	EP (Gerlach et al.)				
DS	*	EP 0387775	09/19/90	EP (Beug et al.)				
DS	*	WO 88/04300	06/16/88	WO (Cech et al.)				
DS	*	WO 91/03162	03/21/91	WO (Rossi et al.)				
DS	*	WO 92/07065	04/03/92	WO (Eckstein et al.)				

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

DS	*	Baer et al., "Structure and Function of Bacterial RNase P," <u>Nucleic Acids and Molecular Biology</u> , Vol. 3, pp. 231-250, Eckstein and Lilley eds, Springer Verlag, Berlin/Heidelberg (1989)
----	---	--

EXAMINER	/Dana Shin/	DATE CONSIDERED	09/06/2006
----------	-------------	-----------------	------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

FORM PTO-1449 (Rev. 2-32)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 00-838-Q (600.038)	Serial No. 10/656,270
<p align="center"><b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b></p> <p>(Use several sheets if necessary)</p>		Applicant: Eckstein et al.	
		Filing Date: September 5, 2003	Group: 1635

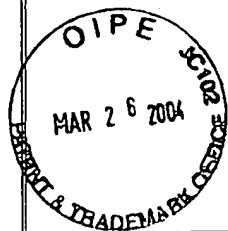


DS	1.	Barinaga, "Ribozymes: Killing the Messenger," <u>Science</u> 262:1512-1514 (1993)
DS	.	Bass and Cech, "Ribozyme Inhibitors: Deoxyguanosine and Dideoxyguanosine Are Competitive Inhibitors of Self-Splicing of the <i>Tetrahymena</i> Ribosomal Ribonucleic Acid Precursor," <u>Biochemistry</u> 25:4473-4477 (1986)
DS	.	Been and Cech, "One Binding Site Determines Sequence Specificity of <i>Tetrahymena</i> Pre-rRNA Self-Splicing, Trans-Splicing and RNA Enzyme Activity," <u>Cell</u> 47:207-216 (1986)
DS	.	Black et al., "The Antiviral Activity of Certain Thiophosphate and 2'-Chloro Substituted Polynucleotide Homopolymer Duplexes," <u>Virology</u> 48:537-545 (1972)
DS	2.	Branch, "A good antisense molecule is hard to find," <u>TIBS</u> 23:45-50 (1998)
DS	.	Cameron and Jennings, "Specific Gene Expression by Engineered Ribozymes in Monkey Cells," <u>Proc. Natl. Acad. Sci. USA</u> 86:9139-9143 (1989)
DS	.	Cech et al., "RNA as an Enzyme," <u>Scientific American</u> 255:64-74 (1986)
DS	.	Cech, "A Model for the RNA-Catalyzed Replication of RNA," <u>Proc. Natl. Acad. Sci. USA</u> 83:4360-4363 (1986)
DS	.	Cech, "Self-Splicing of Group I Introns," <u>Annu. Rev. Biochem.</u> 59:543-568 (1990)
DS	.	Cech, "The Chemistry of Self-Splicing RNA and RNA Enzymes," <u>Science</u> 236:1532-1539 (1987)
DS	.	Cedergren et al., "Abstract presentation at Cold Spring Harbor meeting: RNA Processing," May 16-20, 1990
DS	.	Cedergren et al., "Catalytic RNA as an Anti-HIV Agent: Design and Delivery to Cells," <u>Abstract NIH Conference</u> , October 21-24, 1990, San Diego, California
DS	.	Chowrira and Burke, "Binding and Cleavage of Nucleic Acids by the "Hairpin" Ribozyme," <u>Biochemistry</u> 30:8518-8522 (1991)

EXAMINER /Dana Shin/	DATE CONSIDERED 09/06/2006
-------------------------	-------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

<b>FORM PTO-1449</b> (Rev. 2-32)	<b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>	<b>Atty. Docket No.</b> 00-838-Q (600.038)	<b>Serial No.</b> 10/656,270
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use several sheets if necessary)		<b>Applicant:</b> Eckstein et al.	
		<b>Filing Date:</b> September 5, 2003	<b>Group:</b> 1635



DS	*	Chowrira et al., "Four Ribose 2'-Hydroxyl Groups Essential for Catalytic Function of the Hairpin Ribozyme," <i>J. Biol. Chem.</i> 268:19458-19462 (1993)
DS	*	Codington et al., "Nucleosides. XVIII. Synthesis of 2'-Fluorothymidine, 2'-Fluorodeoxyuridine, and Other 2'-Halogeno-2'-Deoxy Nucleosides," <i>J. Org. Chem.</i> 29:558-567 (1964)
DS	*	Cotten et al., "Ribozyme, Antisense RNA and Antisense DNA Inhibition of U7 Small Nuclear Ribonucleoprotein-Mediated Histone Pre-mRNA Processing In Vitro," <i>Molecular and Cellular Biology</i> 9:4479-4487 (1989)
DS	*	Cotten, "The in vivo application of ribozymes," <i>TIBTECH</i> 8:174-178 (1990)
DS	*	Doerr and Fox, "Nucleosides. XXXIX. 2'-Deoxy-2'-fluorocytidine, 1-β-D-Arabinofuranosyl-2-amino-1,4(2H)-4-iminopyrimidine, and Related Derivatives," <i>J. Org. Chem.</i> 32:1462-1471 (1976)
DS	3.	Donis-Keller et al., "Mapping adenines, guanines, and pyrimidines in RNA," <i>Nucleic Acids Res.</i> , 4, 2527-2538 (1977)
DS	*	Doudna et al., "A Multisubunit that is a Catalyst of and Template for Complementary Strand RNA Synthesis," <i>Science</i> 251:1605 (1991)
DS	*	Egli et al., "Crystal Structure of an Okazaki Fragment at 2-A Resolution," <i>Proc. Natl. Acad. Sci. USA</i> 89:534-538 (1992)
DS	*	Ellington and Szostak, "In Vitro selection of RNA molecules that bind specific ligands," <i>Nature</i> 346:818-822 (1990)
DS	*	Fedor and Uhlenbeck, "Substrate sequence effects on 'hammerhead' RNA catalytic efficiency," <i>Proc. Natl. Acad. Sci. USA</i> 87:1668-1672 (1990)
DS	*	Greider and Blackburn, "A telomeric sequence in the RNA of <i>Tetrahymena</i> telomerase required for telomere repeat synthesis," <i>Nature</i> 337:331-337 (1989)
DS	*	Hampel et al., "'Hairpin' Catalytic RNA Model: Evidence for Helices and Sequence Requirement for Substrate RNA," <i>Nucleic Acids Research</i> 18:299-304 (1990)

<b>EXAMINER</b> /Dana Shin/	<b>DATE CONSIDERED</b> 09/06/2006
-----------------------------	-----------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

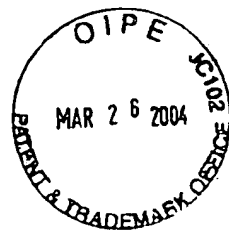
<b>FORM PTO-1449</b> (Rev. 2-32)	<b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>	<b>Atty. Docket No.</b>  00-838-Q (600.038)	<b>Serial No.</b>  10/656,270
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use several sheets if necessary)		<b>Applicant:</b>  Eckstein et al.	
		<b>Filing Date:</b>  September 5, 2003	<b>Group:</b>  1635



DS	*	Haseloff and Gerlach, "Simple RNA Enzymes with New and Highly Specific Endoribonuclease Activities," <u>Nature</u> 334:585-591 (1988)
DS	*	Herschlag and Cech, "DNA cleavage catalysed by the ribozyme from <i>Tetrahymena</i> ," <u>Nature</u> 344:405-409 (1990)
DS	*	Hobbs et al., "Polynucleotides Containing 2'-Chloro-2'-deoxyribose," <u>Biochemistry</u> 11:43367-4334 (1972)
DS	*	Hutchins et al., "Self-cleavage of Plus and Minus RNA Transcripts of Avocado Sunblotch Viroid," <u>Nucleic Acids Research</u> 14:3627-3640 (1986)
DS	*	Ikehara and Miki, "Studies of Nucleosides and Nucleotides. LXXXII. Cyclonucleosides. (39). Synthesis and Properties of 2'-Halogeno-2'-deoxyadenosines," <u>Chem. Pharm. Bull.</u> 26:2449-2453 (1978)
DS	*	Imazawa and Eckstein, "Facile Synthesis of 2'-Amino-2'-deoxyribofuranosyl Purines," <u>J. Org. Chem.</u> 44:2039-2041 (1979)
DS	*	Ludwig and Eckstein, "Rapid and Efficient Synthesis of Nucleoside 5'-O-(1-Thiotriphosphates), 5'-Triphosphates and 2',3'-Cyclophosphorothioates Using 2-Chloro-4H-1,3,2-Benzodioxaphosphorin-4-one," <u>J. Org. Chem.</u> 54:631-635 (1989)
DS	*	Ludwig, "A New Route to Nucleoside 5'-Triphosphates," <u>Acta Biochim. Biophys. Acad. Sci. Hung.</u> 16:131-133 (1981)
DS	*	Mengel and Guschlbauer, "Einfache Umwandlung von 2,2'-Anhydrocytidin in 2'-Desoxy-2'-fluorcytidin durch nucleophile Substitution mit Kaliumfluorid/Kronenether," <u>Ang. Chem.</u> 90:557-558 (1979)
DS	4.	Milligan and Uhlenbeck, "Synthesis of Small RNAs Using T7 RNA Polymerase," <u>Methods Enzymol.</u> 180:51-62 (1989)
DS	*	Mungall et al., "Use of the Azido Group in the Synthesis of 5' Terminal Aminodeoxythymidine Oligonucleotides," <u>J. Org. Chem.</u> 40:1659-1662 (1975)

<b>EXAMINER</b> /Dana Shin/	<b>DATE CONSIDERED</b> 09/06/2006
-----------------------------	-----------------------------------


EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

FORM PTO-1449 (Rev. 2-32)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No.  00-838-Q (600.038)	Serial No.  10/656,270
	<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use several sheets if necessary)	Applicant:  Eckstein et al.	
		Filing Date:  September 5, 2003	Group:  1635

DS	.	Nielsen et al., "Sequence-Selective Recognition of DNA by Strand Displacement with a Thymine-Substituted Polyamide," <i>Science</i> 254:1497 (1991)
DS	5.	Olsen & Eckstein, "Incomplete primer extension during <i>in vitro</i> DNA amplification catalyzed by <i>Taq</i> polymerase; exploitation for DNA sequencing," <i>Nucleic Acids Res.</i> , 17, 9613-9620 (1989)
DS	6.	Olsen & Eckstein, "High-efficiency oligonucleotide-directed plasmid mutagenesis," <i>PNAS USA</i> , 87, 1451-1456 (1990)
DS	.	Paoletta et al., "Nuclease Resistant Ribozymes with High Catalytic Activity," <i>EMBO Journal</i> 11:1913-1919 (1992)
DS	.	Perreault et al., "Mixed Deoxyribo- and Ribo-Oligonucleotides with Catalytic Activity," <i>Nature</i> 344:565-567 (1990) (often mistakenly listed as Perrault)
DS	.	Perreault et al., "Relationship between 2'-Hydroxyls and Magnesium Binding in the Hammerhead RNA Domain: A Model for Ribozyme Catalysis," <i>Biochemistry</i> 30:4020-4025 (1991)
DS	.	Pieken et al., "Kinetic Characterization of Ribonuclease-Resistant 2'-Modified Hammerhead Ribozymes," <i>Science</i> 253:314-317 (1991)
DS	.	Pieken et al., "Influence of 2'-Amino and 2'-Fluoro Modifications on the catalytic Properties of Hammerhead Ribozymes," <i>Abstract of the 14<sup>th</sup> International tRNA workshop</i> , May 4-9, 1991, Ridzyna, Poland
DS	.	Price and Cech, "Coupling of <i>Tetrahymena</i> Ribosomal RNA Splicing to $\beta$ -Galactosidase Expression in <i>Escherichia coli</i> ," <i>Science</i> 228:719-722 (1985)
DS	.	Rossi and Sarver, "RNA enzymes (ribozymes) as antiviral therapeutic agents," <i>TIBTECH</i> 8:179-183 (1990)
DS	.	Ruffner et al., "Thiophosphate interference experiments locate phosphates important for the hammerhead RNA self-cleavage reaction," <i>Gene</i> , 82:31-41 (1989)

EXAMINER  /Dana Shin/	DATE CONSIDERED  09/06/2006
-----------------------------	-----------------------------------


EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

FORM PTO-1449 (Rev. 2-32)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No.	Serial No.
		<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use several sheets if necessary)	00-838-Q (600.038)
	Applicant:		
	Eckstein et al.		
		Filing Date:	Group:
		September 5, 2003	1635

DS	7.	Saenger (ed), "Modified Nucleosides and Nucleotides; Nucleoside Di- and Triphosphates; Coenzymes and Antibiotics, (ch.7)" <u>Principles of Nucleic Acid Structure</u> 158-200 (1984)
DS	*	Sarver et al., "Ribozymes as Potential Anti-HIV-1 Therapeutic Agents" <u>Science</u> 247:1222-1225 (1990)
DS	*	Scaringe et al., "Chemical synthesis of biologically active oligoribonucleotides using $\beta$ -cyanoethyl protected ribonucleoside phosphoramidites," <u>Nucl Acids Res.</u> 18:5433-5441 (1990)
DS	*	Sinha et al., "Polymer support oligonucleotide synthesis XVIII <sup>(1,2)</sup> : use of $\beta$ -cyanoethyl-N,N-dialkylamino-/N-morpholino phosphoramidite of deoxynucleosides for the synthesis of DNA fragments simplifying deprotection and isolation of the final product," <u>Nucleic Acids Research</u> 12:4539-4577 (1984)
DS	*	Strobel and Cech, "Tertiary Interactions with the Internal Guide Sequence Mediate Docking of the P1 Helix into the Catalytic Core of the T. Ribozyme," <u>Biochemistry</u> 32:13593-13604 (1993)
DS	8.	Stull and Szoka, "Antigene, Ribozyme and Aptamer Nucleic Acid Drugs: Progress and Prospects," <u>Pharmaceutical Research</u> 12:465-483 (1995)
DS	*	Sung, "Synthesis of 4-(1,2,4-Triazol-1-yl) pyrimidine-2(1H)-one-Ribonucleotide and Its Application in Synthesis of Oligoribonucleotides," <u>J. Org. Chem.</u> 47:3623-3628 (1982)
DS	*	Symons, "Self-cleavage of RNA in the replication of small pathogens of plants and animals," <u>TIBS</u> 14:445-450 (1989)
DS	9.	Taylor et al., "The use of phosphorothioate-modified DNA in restriction enzyme reactions to prepare nicked DNA," <u>Nucleic Acids Res.</u> , 13, 8749-8764 (1985)
DS	*	Tuerk and Gold, "Systematic Evolution of Ligands by Exponential Enrichment: RNA Ligands to Bacteriophage T4 DNA Polymerase," <u>Science</u> 249:505-510 (1990)

EXAMINER	/Dana Shin/	DATE CONSIDERED 09/06/2006
----------	-------------	----------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

<b>FORM PTO-1449</b> (Rev. 2-32)	<b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>	<b>Atty. Docket No.</b> 00-838-Q (600.038)	<b>Serial No.</b> 10/656,270
		<b>Applicant:</b> Eckstein et al.	
		<b>Filing Date:</b> September 5, 2003	<b>Group:</b> 1635

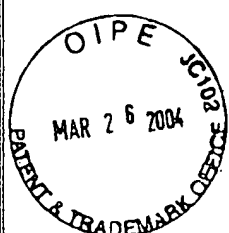
**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use several sheets if necessary)

DS	*	Uchida and Egami, "Microbial Ribonucleases with Special Reference to RNases T <sub>1</sub> , T <sub>2</sub> , N <sub>1</sub> , N <sub>2</sub> , and U <sub>2</sub> ," <u>The Enzymes</u> Vol. IV, 3rd ed., pp. 205-250, P.D. Boyer editor, Academic Press (1971)
DS	*	Uhlenbeck, "A Small Catalytic Oligoribonucleotide," <u>Nature</u> 328:596-600 (1987) (this is listed as Nature 327 in the various specifications, but it is actually 328)
DS	*	Uhlenbeck, <u>Proc. Natl. Acad. Scie. USA</u> , 87:1668-1672 (1990)
DS	*	Uhlmann and Peyman, "Antisense Oligonucleotides: A New Therapeutic Principle," <u>Chemical Reviews</u> 90:544-584 (1990)
DS	*	Verheyden et al., "Synthesis of Some Pyrimidine 2'-Amino-2'-deoxynucleosides," <u>J. Org. Chem.</u> 36:250-254 (1971)
DS	*	Williams et al., "Properties of 2'-Fluorothymidine-Containing Oligonucleotides: Interaction with Restriction Endonuclease EcoRV," <u>Biochemistry</u> , 20:4001-4009 (1991)
DS	*	Wu et al., "Convenient Procedure for the Preparation of Specific Mixed DNA-RNA Polymers," <u>J. Am. Chem. Soc.</u> 111:8531-8533 (1991)
DS	*	Yang et al., "Minimum Ribonucleotide Requirement for Catalysis by the RNA Hammerhead Domain," <u>Biochemistry</u> 31:5005-5009 (1992)
DS	*	Yang et al., "Mixed DNA/RNA Polymers Are Cleaved by the Hammerhead Ribozyme," <u>Biochemistry</u> 29:11156-11160 (1990)
DS	*	Zaug and Cech, "The Intervening Sequence RNA of <i>Tetrahymena</i> Is a Enzyme," <u>Science</u> 231:470-475 (1986)
DS	*	Zaug and Cech, "The <i>Tetrahymena</i> Intervening Sequence Ribonucleic Acid Enzyme Is a Phosphotransferase and an Acid Phosphatase," <u>Biochemistry</u> 25:4478-4482 (1986)
DS	*	Zaug et al., "A Labile Phosphodiester Bond at the Ligation Junction in a Circular Intervening Sequence RNA," <u>Science</u> 224:574-578 (1984)

EXAMINER /Dana Shin/	DATE CONSIDERED 09/06/2006
----------------------	----------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

FORM PTO-1449 (Rev. 2-32)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No.  00-838-Q (600.038)	Serial No.  10/656,270
 <p><b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b></p> <p>(Use several sheets if necessary)</p>		<b>Applicant:</b>  Eckstein et al.	
		<b>Filing Date:</b>  September 5, 2003	<b>Group:</b>  1635

DS	.	Zaug et al., "Sequence-Specific Endoribonuclease Activity of the Tetrahymena Ribozyme: Enhanced Cleavage of Certain Oligonucleotide Substrates That Form Mismatched Ribozyme-Substrate Complexes," <u>Biochemistry</u> 27:8924-8931 (1988)
DS	.	Zaug et al., "The <i>Tetrahymena</i> Ribozyme Acts Like an RNA Restriction Endonuclease," <u>Nature</u> 324:429-433 (1986)

EXAMINER  /Dana Shin/	DATE CONSIDERED  09/06/2006
-----------------------------	-----------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.



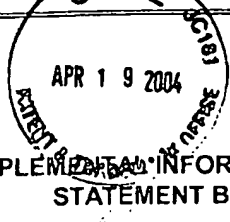
<b>FORM PTO-1449</b> (Rev. 2-32)	<b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>	<b>Atty. Docket No.</b> 00-838-Q (600.038)	<b>Serial No.</b> 10/656,270
<b>SUPPLEMENTAL INFORMATION DISCLOSURE          STATEMENT BY APPLICANT</b> (Use several sheets if necessary)		<b>Applicant:</b> Eckstein et al.	
		<b>Filing Date:</b> September 5, 2003	<b>Group:</b> 1635


**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).**

DS	1.	King et al., "Optimizing DNA Ligations for Transformation," <i>Focus</i> , Vol. 8 No. 1, p. 1-3 (1986)
----	----	--

<b>EXAMINER</b> /Dana Shin/	<b>DATE CONSIDERED</b> 09/06/2006
-----------------------------	-----------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

<b>FORM PTO-1449</b> (Rev. 2-32)	<b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>	<b>Atty. Docket No.</b> 00-838-Q (600.038)	<b>Serial No.</b> 10/656,270
 <b>SUPPLEMENTAL INFORMATION DISCLOSURE</b> <b>STATEMENT BY APPLICANT</b>		<b>Applicant:</b> Eckstein et al.	
(Use several sheets if necessary)		<b>Filing Date:</b> September 5, 2003	<b>Group:</b> 1635

### U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
DS	*	5,670,633	09/23/97	Cook et al.			
DS	*	6,005,087	12/21/99	Cook et al.			

<b>EXAMINER</b> /Dana Shin/	<b>DATE CONSIDERED</b> 09/06/2006
-----------------------------	-----------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.